**Supplementary file 1**

**Characteristics of the NHS 111 online and telephone populations**

Table 1: Disposition comparison for NHS 111 calls and online contacts for the 18 NHS 111 area codes (Jan – Dec 2019).

| **Site** | **Disposition** | **Call N** | **%** | **Online N** | **%** | **Site** | **Call N** | **%** | **Online N** | **%** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **North East-111AA1** | *5.23 (Ambulance)* | 128500 | 14.9% | 19610 | 13.8% | **Northamptonshire-111AC6** | 28460 | 13.8% | 3934 | 14.7% |
| *5.24 (A&E)* | 78262 | 9.1% | 14646 | 10.3% | 19123 | 9.3% | 2959 | 11.1% |
| *5.25 Primary Care* | 428572 | 49.6% | - | - | 119126 | 57.7% | - | - |
| *5.25a (Contact Primary care)* | 323130 | 37.4% | 71415 | 50.2% | 80425 | 39% | 13168 | 49.2% |
| *5.25b (Speak to Primary care)* | 48056 | 5.6% | 11124 | 7.8% | 30850 | 15% | 2227 | 8.3% |
| *5.25c (Dental and Pharmacy)* | 0 | 0% | - | - | 0 | 0% | - | - |
| *5.25d (Dental)* | 55219 | 6.4% | 6680 | 4.7% | 7319 | 3.5% | 1024 | 3.8% |
| *5.25e (Pharmacy)* | 2167 | 0.3% | 878 | 0.6% | 532 | 0.3% | 155 | 0.6% |
| *5.26 (Other Service)* | 130565 | 15.1%% | 16806 | 11.8% | 8225 | 4% | 3083 | 11.5% |
| *5.27 (No attend other service)* | 97714 | 11.3% | - | - | 31354 | 15.2% | - | - |
| *5.27a (Health information)* | 8800 | 1% | - | - | 2304 | 1.1% | - | - |
| *5.27b (Home Care)* | 22439 | 2.6% | 703 | 0.5% | 9466 | 4.6% | 122 | 0.5% |
| *5.27c (Non-Clinical)* | 66475 | 7.7% | - | - | 19584 | 9.5% | - | - |
| *NA* | - | - | 511 | 0.4% | - | - | 93 | 0.3% |
| **Lincolnshire-111AA2** | *5.23 (Ambulance)* | 28940 | 13.8% | 3901 | 14.7% | **Milton Keynes-111AC7** | 9005 | 12.9% | 1581 | 15.2%% |
| *5.24 (A&E)* | 11793 | 5.6% | 2495 | 9.4% | 5163 | 7.4% | 1064 | 10.3% |
| *5.25 Primary Care* | 102192 | 48.7% | - | - | 41521 | 59.6% | - | - |
| *5.25a (Contact Primary care)* | 69805 | 33.2% | 13057 | 49.3% | 26715 | 38.4% | 4851 | 46.8% |
| *5.25b (Speak to Primary care)* | 23542 | 11.2% | 2115 | 8% | 9460 | 13.6% | 813 | 7.8% |
| *5.25c (Dental and Pharmacy)* | 0 | 0% | - | - | 0 | 0% | - | - |
| *5.25d (Dental)* | 8448 | 4% | 1455 | 5.5% | 5172 | 7.4% | 598 | 5.8% |
| *5.25e (Pharmacy)* | 397 | 0.2% | 169 | 0.6% | 174 | 0.2% | 71 | 0.7% |
| *5.26 (Other Service)* | 42915 | 20.4% | 3050 | 11.5% | 1846 | 2.7% | 1312 | 12.7% |
| *5.27 (No attend other service)* | 24122 | 11.5% | - | - | 12086 | 17.4% | - | - |
| *5.27a (Health information)* | 3324 | 1.6% | - | - | 935 | 1.3% | - | - |
| *5.27b (Home Care)* | 4032 | 1.9% | 115 | 0.4% | 3830 | 5.5% | 52 | 0.5% |
| *5.27c (Non-Clinical)* | 16766 | 8% | - | - | 7321 | 10.5% | - | - |
| *NA* | - | - | 112 | 0.4% | - | - | 26 | 0.3% |
| **Nottinghamshire-111AA4** | *5.23 (Ambulance)* | 40777 | 14.4% | 5386 | 14.9% | **Leicestershire and Rutland-111AC8** | 43298 | 14% | 5826 | 15.2% |
| *5.24 (A&E)* | 22479 | 8% | 3639 | 10% | 20389 | 6.6% | 3685 | 9.6% |
| *5.25 Primary Care* | 151518 | 53.7% | - | - | 184107 | 59.6% | - | - |
| *5.25a (Contact Primary care)* | 93565 | 33.1%% | 17405 | 48% | 127272 | 41.2% | 18944 | 49.5% |
| *5.25b (Speak to Primary care)* | 36617 | 13% | 2808 | 7.7% | 44087 | 14.3% | 3178 | 8.3% |
| *5.25c (Dental and Pharmacy)* | 0 | 0% | - | - | 0 | 0% | - | - |
| *5.25d (Dental)* | 20722 | 7.3% | 2105 | 5.8% | 11777 | 3.8% | 1417 | 3.7% |
| *5.25e (Pharmacy)* | 614 | 0.2% | 227 | 0.6% | 971 | 0.3% | 238 | 0.6% |
| *5.26 (Other Service)* | 16907 | 6% | 4382 | 12.1% | 10953 | 3.5% | 4571 | 12% |
| *5.27 (No attend other service)* | 50707 | 18% | - | - | 50153 | 16.2% | - | - |
| *5.27a (Health information)* | 3142 | 1.1%% | - | - | 3037 | 1% | - | - |
| *5.27b (Home Care)* | 12658 | 4.5% | 174 | 0.5% | 15545 | 5% | 182 | 0.5% |
| *5.27c (Non-Clinical)* | 34907 | 12.4% | - | - | 31571 | 10.2% | - | - |
| *NA* | - | - | 137 | 0.4% | - | - | 194 | 0.5% |
| **Derbyshire-111AA5** | *5.23 (Ambulance)* | 42481 | 13.6% | 5500 | 14.1% | **Outer North West London-111AD4** | 29515 | 14% | 3062 | 15.2% |
| *5.24 (A&E)* | 19818 | 6.4% | 3712 | 9.5% | 22197 | 10.5% | 1789 | 8.9% |
| *5.25 Primary Care* | 183327 | 58.9% | - | - | 128038 | 60.7% | - | - |
| *5.25a (Contact Primary care)* | 118018 | 37.9% | 19676 | 50.3% | 87678 | 41.6% | 9508 | 47.3% |
| *5.25b (Speak to Primary care)* | 49925 | 16% | 3209 | 8.2% | 26269 | 12.5% | 1534 | 7.6% |
| *5.25c (Dental and Pharmacy)* | 0 | 0% | - | - | 0 | 0% | - | - |
| *5.25d (Dental)* | 14710 | 4.7% | 1683 | 4.3% | 13205 | 6.3% | 1230 | 6.1% |
| *5.25e (Pharmacy)* | 674 | 0.2% | 243 | 0.6% | 886 | 0.4% | 163 | 0.8% |
| *5.26 (Other Service)* | 18042 | 5.8% | 4690 | 12% | 3985 | 1.9% | 2602 | 12.9% |
| *5.27 (No attend other service)* | 47732 | 15.3% | - | - | 27215 | 12.9% | - | - |
| *5.27a (Health information)* | 3327 | 1.1%% | - | - | 2248 | 1.1% | - | - |
| *5.27b (Home Care)* | 13882 | 4.5% | 209 | 0.5% | 8159 | 3.9% | 124 | 0.6% |
| *5.27c (Non-Clinical)* | 30523 | 9.8% | - | - | 16808 | 8% | - | - |
| *NA* | - | - | 163 | 0.4% | - | - | 88 | 0.4% |
| **Isle of Wight-111AA6** | *5.23 (Ambulance)* | 10881 | 13.3% | 695 | 14.9% | **North Central London-111AD5** | 37331 | 12.6% | 4188 | 13.9% |
| *5.24 (A&E)* | 8560 | 10.5% | 457 | 9.8% | 28086 | 9.5% | 2886 | 9.6% |
| *5.25 Primary Care* | 44983 | 54.9% | - | - | 156818 | 53.1% | - | - |
| *5.25a (Contact Primary care)* | 28630 | 35% | 2141 | 45.8% | 100074 | 33.9% | 14212 | 47.2% |
| *5.25b (Speak to Primary care)* | 9920 | 12.1%% | 354 | 7.6% | 39674 | 13.4% | 2375 | 7.9% |
| *5.25c (Dental and Pharmacy)* | 0 | 0% | - | - | 0 | 0% | - | - |
| *5.25d (Dental)* | 6159 | 7.5% | 393 | 8.4% | 15473 | 5.2% | 1914 | 6.4% |
| *5.25e (Pharmacy)* | 274 | 0.3% | 25 | 0.5% | 1597 | 0.5% | 228 | 0.8% |
| *5.26 (Other Service)* | 2025 | 2.5% | 571 | 12.2% | 27533 | 9.3% | 3989 | 13.3% |
| *5.27 (No attend other service)* | 15457 | 18.9% | - | - | 45761 | 15.5% | - | - |
| *5.27a (Health information)* | 1066 | 1.3% | - | - | 5565 | 1.9% | - | - |
| *5.27b (Home Care)* | 2332 | 2.8% | 22 | 0.5% | 6051 | 2% | 158 | 0.5% |
| *5.27c (Non-Clinical)* | 12059 | 14.7% | - | - | 34145 | 11.6% | - | - |
| *NA* | - | - | 17 | 0.4% | - | - | 133 | 0.4% |
| **Inner North West London-111AA7** | *5.23 (Ambulance)* | 13345 | 11.8% | 1930 | 14.9% | **South East London-111AD7** | 37089 | 9.3% | 6423 | 13.6% |
| *5.24 (A&E)* | 10816 | 9.6% | 1292 | 10% | 36412 | 9.2% | 4497 | 9.5% |
| *5.25 Primary Care* | 62194 | 55.2% | - | - | 242232 | 61% | - | - |
| *5.25a (Contact Primary care)* | 39388 | 35% | 5923 | 45.7% | 191212 | 48.1% | 23363 | 49.5% |
| *5.25b (Speak to Primary care)* | 14876 | 13.2% | 1006 | 7.8% | 39388 | 9.9% | 3609 | 7.6% |
| *5.25c (Dental and Pharmacy)* | 0 | 0% | - | - | 0 | 0% | - | - |
| *5.25d (Dental)* | 7083 | 6.3% | 809 | 6.2% | 9844 | 2.5% | 2354 | 5% |
| *5.25e (Pharmacy)* | 847 | 0.8% | 134 | 1% | 1788 | 0.5% | 408 | 0.9% |
| *5.26 (Other Service)* | 6575 | 5.8% | 1730 | 13.4% | 18846 | 4.7% | 6146 | 13% |
| *5.27 (No attend other service)* | 19696 | 17.5% | - | - | 62618 | 15.8% | - | - |
| *5.27a (Health information)* | 2444 | 2.2% | - | - | 2148 | 0.5% | - | - |
| *5.27b (Home Care)* | 2334 | 2.1%% | 67 | 0.5% | 30351 | 7.6% | 239 | 0.5% |
| *5.27c (Non-Clinical)* | 14918 | 13.2% | - | - | 30119 | 7.6% | - | - |
| *NA* | - | - | 64 | 0.5% | - | - | 204 | 0.4% |
| **Hillingdon-111AA9** | *5.23 (Ambulance)* | 9387 | 14.1%% | 1001 | 15.4% | **Bristol, North Somerset & South Gloucestershire-111AE7** | 39989 | 16.5% | 3495 | 13.4% |
| *5.24 (A&E)* | 6968 | 10.5% | 581 | 8.9% | 26174 | 10.8% | 2457 | 9.4% |
| *5.25 Primary Care* | 40288 | 60.5% | - | - | 145490 | 60.1% | - | - |
| *5.25a (Contact Primary care)* | 28202 | 42.4% | 3238 | 49.8% | 103174 | 42.6% | 12774 | 49% |
| *5.25b (Speak to Primary care)* | 8428 | 12.7% | 503 | 7.7% | 32751 | 13.5% | 2179 | 8.4% |
| *5.25c (Dental and Pharmacy)* | 0 | 0% | - | - | 0 | 0% | - | - |
| *5.25d (Dental)* | 3394 | 5.1%% | 282 | 4.3% | 8774 | 3.6% | 1456 | 5.6% |
| *5.25e (Pharmacy)* | 264 | 0.4% | 42 | 0.6% | 791 | 0.3% | 167 | 0.6% |
| *5.26 (Other Service)* | 833 | 1.3% | 792 | 12.2% | 4380 | 1.8% | 3296 | 12.7% |
| *5.27 (No attend other service)* | 9084 | 13.6% | - | - | 25918 | 10.7% | - | - |
| *5.27a (Health information)* | 722 | 1.1%% | - | - | 4390 | 1.8% | - | - |
| *5.27b (Home Care)* | 2457 | 3.7% | 32 | 0.5% | 6894 | 2.8% | 135 | 0.5% |
| *5.27c (Non-Clinical)* | 5905 | 8.9% | - | - | 14634 | 6% | - | - |
| *NA* | - | - | 27 | 0.4% | - | - | 87 | 0.3% |
| **Hertfordshire-111AB2** | *5.23 (Ambulance)* | 27582 | 9.2% | 5845 | 17% | **Cornwall-111AF1** | 16904 | 12.8% | 2505 | 14.9% |
| *5.24 (A&E)* | 20206 | 6.8% | 3484 | 10.2% | 5997 | 4.6% | 1542 | 9.2% |
| *5.25 Primary Care* | 181633 | 60.7% | - | - | 68152 | 51.8% | - | - |
| *5.25a (Contact Primary care)* | 121049 | 40.5% | 16627 | 48.4% | 40315 | 30.6% | 8192 | 48.8% |
| *5.25b (Speak to Primary care)* | 45772 | 15.3% | 2532 | 7.4% | 24147 | 18.4% | 1362 | 8.1% |
| *5.25c (Dental and Pharmacy)* | 0 | 0% | - | - | 0 | 0% | - | - |
| *5.25d (Dental)* | 13162 | 4.4% | 1306 | 3.8% | 3424 | 2.6% | 958 | 5.7% |
| *5.25e (Pharmacy)* | 1650 | 0.6% | 243 | 0.7% | 266 | 0.2% | 86 | 0.5% |
| *5.26 (Other Service)* | 43223 | 14.4% | 3966 | 11.6% | 27549 | 20.9% | 2017 | 12% |
| *5.27 (No attend other service)* | 26552 | 8.9% | - | - | 12964 | 9.9% | - | - |
| *5.27a (Health information)* | 4453 | 1.5% | - | - | 1090 | 0.8% | - | - |
| *5.27b (Home Care)* | 12087 | 4% | 178 | 0.5% | 4205 | 3.2% | 71 | 0.4% |
| *5.27c (Non-Clinical)* | 10012 | 3.3% | 14 | 0% | 7669 | 5.8% | - | - |
| *NA* | - | - | 125 | 0.4% | - | - | 53 | 0.3% |
| *5.23 (Ambulance)* |  | 30481 | 13.9% | 4002 | 13.3% | **Staffordshire-111AF4** | 36875 | 13.2% | 5535 | 15% |
| *5.24 (A&E)* | 18670 | 8.5% | 3043 | 10.1% | 23994 | 8.6% | 3326 | 9% |
| *5.25 Primary Care* | 129417 | 58.9% | - | - | 164109 | 58.7% | - | - |
| *5.25a (Contact Primary care)* | 81509 | 37.1%% | 14749 | 48.9% | 110994 | 39.7% | 18505 | 50.2% |
| *5.25b (Speak to Primary care)* | 34400 | 15.7% | 2413 | 8% | 39287 | 14.1% | 2998 | 8.1% |
| *5.25c (Dental and Pharmacy)* | 0 | 0% | - | - | 0 | 0% | - | - |
| *5.25d (Dental)* | 12782 | 5.8% | 1536 | 5.1% | 12657 | 4.5% | 1794 | 4.9% |
| *5.25e (Pharmacy)* | 729 | 0.3% | 195 | 0.6% | 1171 | 0.4% | 215 | 0.6% |
| *5.26 (Other Service)* | 23525 | 10.7% | 3928 | 13% | 15092 | 5.4% | 4160 | 11.3% |
| *5.27 (No attend other service)* | 17537 | 8% | - | - | 39339 | 14.1% | - | - |
| *5.27a (Health information)* | 3384 | 1.5% | - | - | 1698 | 0.6% | - | - |
| *5.27b (Home Care)* | 7263 | 3.3% | 169 | 0.6% | 19164 | 6.9% | 174 | 0.5% |
| *5.27c (Non-Clinical)* | 6890 | 3.1%% | - | - | 18477 | 6.6% | - | - |
| *NA* | - | - | 97 | 0.3% | - | - | 139 | 0.4% |

Table 2: Starting pathway got NHS 111 online contacts

| **Starting Pathway** | **Number** | **Percent** |
| --- | --- | --- |
| Dental Problems | 50317 | 10.70 |
| Abdominal Pain | 34320 | 7.30 |
| Skin Problems | 17501 | 3.72 |
| Flank or Side Pain | 15953 | 3.39 |
| Chest and Upper Back Pain | 14567 | 3.09 |
| Lower Limb Pain or Swelling | 12853 | 2.73 |
| Headache | 12812 | 2.72 |
| Sore Throat or Hoarse Voice | 12415 | 2.64 |
| Breathing Problems, Breathlessness or Wheeze | 12194 | 2.59 |
| Passing Urine, Associated Pain, Frequency or Smell | 11220 | 2.38 |
| Lower Back Pain | 10830 | 2.30 |
| Vomiting and/or Nausea | 10283 | 2.18 |
| Vaginal Bleeding | 9535 | 2.02 |
| Cold or Flu (Declared) | 9346 | 1.98 |
| Cough | 8839 | 1.88 |
| Earache | 8702 | 1.85 |
| Dizziness or Vertigo | 8563 | 1.825 |
| Fever | 8472 | 1.80 |
| Mental Health Problems | 8223 | 1.74 |
| Other Symptoms | 7750 | 1.64 |
| Face, Neck Pain or Swelling | 6844 | 1.45 |
| Eye or Eyelid Problems | 6721 | 1.42 |
| Diarrhoea | 6128 | 1.30 |
| Ankle or Foot Injury, Blunt | 5884 | 1.25 |
| Palpitations | 5276 | 1.12 |
| Diarrhoea and Vomiting | 5088 | 1.08 |
| Rectal Bleeding | 5053 | 1.07 |
| Bites and Stings | 4923 | 1.05 |
| Head, Facial or Neck Injury, Blunt | 4025 | 0.85 |
| Wrist, Hand or Finger Pain or Swelling | 3717 | 0.79 |
| Groin Pain or Groin Swelling | 3614 | 0.76 |
| Leg Injury, Blunt | 3549 | 0.75 |
| Arm Pain or Swelling | 3512 | 0.74 |
| Dental Injury | 3428 | 0.73 |
| Genital Problems | 3375 | 0.71 |
| Numbness or Unusual Feelings in the Skin | 3140 | 0.66 |
| Difficulty Swallowing | 2976 | 0.63 |
| Breast Problems | 2848 | 0.60 |
| Tiredness (Fatigue) | 2835 | 0.60 |
| Sexual or Menstrual Concerns | 2800 | 0.59 |
| Blood in Urine | 2595 | 0.55 |
| Shoulder Pain | 2525 | 0.54 |
| Hearing Disturbance or Blocked Ear | 2521 | 0.53 |
| Sinusitis (Declared) | 2489 | 0.53 |
| Constipation | 2464 | 0.52 |
| Bringing Up Blood | 2255 | 0.48 |
| Vaginal Discharge | 2219 | 0.47 |
| Falls, Faints or Blackouts without Injury | 2216 | 0.47 |
| Rectal Pain, Swelling, Lump or Itch | 2164 | 0.46 |
| Toothache After Dental Injury | 2053 | 0.43 |
| Toe Injury, Blunt | 1955 | 0.41 |
| Mouth Ulcers | 1934 | 0.41 |
| Vaginal Swellings | 1904 | 0.40 |
| Hand or Wrist Injury, Blunt | 1895 | 0.40 |
| Chest or Upper Back Injury, Blunt | 1843 | 0.39 |
| Finger or Thumb Injury, Blunt | 1771 | 0.37 |
| Absent or Missed Period | 1761 | 0.37 |
| Self-Harm | 1711 | 0.36 |
| Accidental Poisoning/Inhalation | 1565 | 0.33 |
| Lower Back Injury, Blunt | 1549 | 0.32 |
| Arm Injury, Blunt | 1497 | 0.31 |
| Burn, Thermal | 1400 | 0.29 |
| Tremor | 1304 | 0.27 |
| Vaginal Itch or Soreness | 1298 | 0.27 |
| Difficulty Passing Urine | 1265 | 0.26 |
| Finger or Thumb Injury, Penetrating | 1223 | 0.26 |
| Wound Problems | 1177 | 0.25 |
| Abdominal or Flank Injury, Blunt | 1130 | 0.24 |
| Nosebleeds without Injury | 1087 | 0.23 |
| Behaviour Change | 1076 | 0.22 |
| Loss of Bowel Control | 1048 | 0.22 |
| Eye Splash Injury or Minor Foreign Body | 1046 | 0.22 |
| Leg Injury, Penetrating | 1008 | 0.21 |
| Ankle or Foot Injury, Penetrating | 896 | 0.19 |
| Locked Jaw | 887 | 0.18 |
| Head, Facial or Neck Injury, Penetrating | 837 | 0.17 |
| Diabetes Blood Sugar Problem (Declared) | 794 | 0.16 |
| Sleep Difficulties | 769 | 0.16 |
| Object, Ingested or Inhaled | 751 | 0.15 |
| Nasal Congestion | 676 | 0.14 |
| Ear Discharge or Ear Wax | 630 | 0.13 |
| Wound Problems, Plaster Casts, Tubes and Metal App | 603 | 0.12 |
| Sexual Concerns | 579 | 0.12 |
| Eye Injury, Blunt | 576 | 0.12 |
| Alcohol Intoxication | 573 | 0.12 |
| Toe Injury, Penetrating | 543 | 0.11 |
| Toenail Injury | 444 | 0.09 |
| Skin, Minor Foreign Body | 408 | 0.08 |
| Heat Exposure | 384 | 0.08 |
| Hand or Wrist Injury, Penetrating | 380 | 0.08 |
| Arm Injury, Penetrating | 370 | 0.07 |
| Leg, Cold or Colour Change | 350 | 0.07 |
| Reduced Fetal Movements | 349 | 0.07 |
| Genital Injury, Penetrating | 349 | 0.07 |
| Burn, Sun | 347 | 0.07 |
| Trauma Blisters | 322 | 0.06 |
| Foreign Body, Ear | 320 | 0.06 |
| Fingernail Injury | 317 | 0.06 |
| Scratches, Grazes and Minor Wounds | 295 | 0.06 |
| Genital Injury, Blunt | 289 | 0.06 |
| Foreign Body, Vaginal | 289 | 0.06 |
| Breastfeeding Problems | 253 | 0.05 |
| Deliberate Self-Harm | 225 | 0.04 |
| Eye Injury, Penetrating | 218 | 0.04 |
| Burn, Chemical | 202 | 0.04 |
| Nosebleeds after Injury | 198 | 0.04 |
| Arm, Cold or Colour Change | 193 | 0.04 |
| Catheter Problems | 176 | 0.03 |
| Hair Loss | 165 | 0.03 |
| Abdominal or Flank Injury, Penetrating | 148 | 0.03 |
| Emergency Prescription 111 online | 144 | 0.03 |
| Chest or Upper Back Injury, Penetrating | 121 | 0.02 |
| Hiccups | 112 | 0.02 |
| Lower Back Injury, Penetrating | 109 | 0.02 |
| Stoma Problems | 96 | 0.02 |
| Foreign Body, Rectum | 55 | 0.01 |
| Foreign Body, Penis | 54 | 0.01 |
| Foreign Body, Nose | 54 | 0.01 |
| Skin, Glued | 28 | 0.005 |
| Stroke-like Symptoms | 2 | 0.0004 |